

CLAIMS

What is claimed is:

1. A base station capable of communicating in a time division duplex using code division multiple access format, the base station transmitting a primary synchronization signal and secondary synchronization signals for synchronization purposes, the base station comprising:

means for transmitting a primary synchronization signal in a selected time slot in a primary synchronization channel, the primary synchronization channel using a plurality of time slots for communication;

means for associating each of a plurality of combinations of N code groups and the plurality of time slots with a unique combination of secondary synchronization signals from a set of secondary synchronization signals which does not exceed $(\log_2 N) + 1$ in number; and

means for transmitting selected secondary synchronization signals, the selected secondary synchronization signals associated with one of the N code groups, the one group associated with the base station.

2. The base station of claim 1 wherein the secondary synchronization signals are transmitted either on an in-phase or quadrature carrier.

3. The base station of claim 1 wherein the associating means associates each primary synchronization channel time slot with the unique combination of secondary synchronization signals.

4. The base station of claim 1 further comprising a secondary synchronization spread spectrum signal generator for producing each of the transmitted secondary synchronization signals.

5. A base station capable of communicating in a time division duplex using code division multiple access format, the base station transmitting a primary synchronization signal and secondary synchronization signals for synchronization purposes, the base station comprising:

a primary synchronization spread spectrum signal generator and an antenna for transmitting a primary synchronization signal in a selected time slot in a primary synchronization channel, the primary synchronization channel using a plurality of time slots for communication;

a plurality of secondary synchronization spread spectrum signal generators and the antenna for transmitting selected secondary synchronization signals out of a set of secondary synchronization signals, the selected secondary synchronization signals associated with one of the N code groups associated with the base station, each of a plurality of combinations of the N code groups and the plurality of time slots is associated with a unique combination of the secondary synchronization signals from the set of secondary signals which does not exceed $(\log_2 N) + 1$ in number.

6. The base station of claim 5 wherein the secondary synchronization signals are transmitted either on an in-phase or quadrature carrier.

7. The base station of claim 5 wherein each primary synchronization channel time slot is associated with the unique combination of secondary synchronization signals.